



Centrifugal instability of an axisymmetric vortex in a stratified fluid

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A stability study of an axisymmetric vortex in an incompressible stratified viscous fluid has been performed. A centrifugal instability has been observed and characterized when the stratification direction is aligned along with the vortex axis.

Strong stratification in conjunction with viscosity has been found to be able to favor non-axisymmetric modes. Non-Boussinesq effects have also been considered and found stabilizing. Those theoretical results have been compared with experiments and a good agreement have been observed with the PIV measurements.

The case of a vortex tilted with respect to the stratification direction has also been considered in the experiments and first results will be presented